DSDA iSCSI Disk Array Series

DSA-S5B50 | DSA-N2B20 | DSA-N2B50

BOSCH

en Installation Guide

Table of Contents

1   Precautions

–   The system is heavy even without disks installed. At least two people are required to install the system.

–   The rack cabinet into which this system will be installed must support overcurrent protection and must not be overloaded by the modules installed. Other requirements, such as ventilation airflow, rack stabilizing features, electrical earth, and electrical distribution, must comply with the technical specifications listed in *Section 8 Technical Data*, page 31 and in the documentation that came with this product.

–   All systems must be mounted with and supported by the rails provided and secured in position by the four screws in the front side flanges. In no instance is a system to be mounted by the front side flanges only as this will result in the deforming of the systems chassis causing unacceptably high pressures and/or torques to be applied to internal components resulting in various failure modes.

–   System Integrators should ensure that any integrated storage solution that includes this product has been tested and proved to meet government regulations and codes for subjects including safety, fire, and electrical.

–   Make sure you have a soft, clean surface to place your system before working on it. Placing the system on a rough surface during servicing may damage the chassis finish.

–   Do not remove any module or component item from its anti-static bag until you are ready to install it. Pick up and hold modules by their edges or canister. Avoid touching PCBs and connector pins.

–   Observe all standard ESD prevention methods, e.g., wear an anti-static wristband to prevent static electricity from damaging the electric components.

–   When replacing components insert them as gently as possible while assuring full engagement. Vibration or shock can damage hard drives in the affected unit or other units in the rack. Hard drives are very sensitive to shock and vibration, especially while in operation and should always be handled very carefully.

–   After all equipment is installed in a rack dress the power and data cables such that power cables are not resting against data (SCSI, IP, RS-232) cables.

2 Introduction

This guide explains the installation of the digital storage systems of type
– DSA-S5B50
– DSA-N2B20
– DSA-N2B50

for either direct storage of recorded video data or for use with the VRM Video Recording Manager application.

Additional documentation is available on the internet and can be downloaded from **www.boschsecurity.com** under **Product Catalog** > **CCTV** > **IP Video** > **Disk Arrays**.

2.1 Systems at a Glance

DSA-S5B50	DSA-N2B20	DSA-N2B50
12 / 6 disks, 1 TB each	12 disks, 750 GB each	20 disks, 750 GB each
	shelf expansion units available with 14 disks (750 GB) each	shelf expansion units available with 14 disks (750 GB) each
RAID-4 RAID-DP optionally configurable	RAID-DP	RAID-DP

2.1.1 Hardware Overview

Example overview (DSA-N2B20):
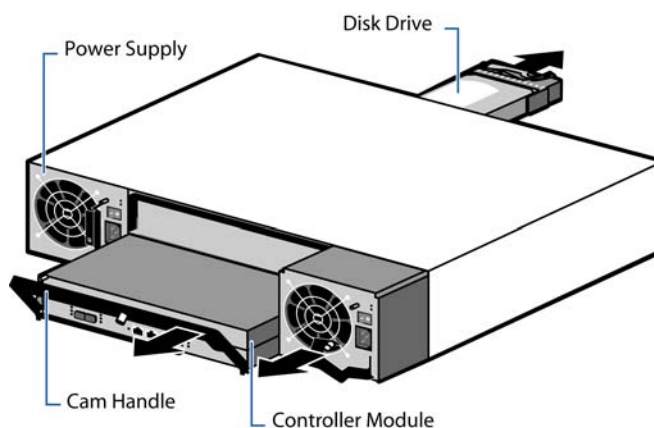
Example front side (DSA-N2B20):
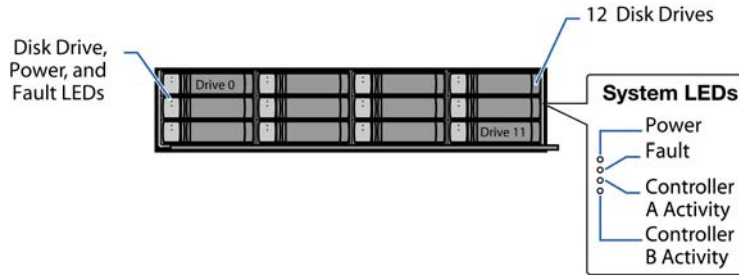
Example rear side (DSA-N2B20):

Expansion unit – disk shelf: Front side

Expansion unit – disk shelf: Rear side

2.1.2 CCTV Integration

Example for installation without VRM:

3   Unpacking and Installing the Hardware

NOTICE!
For more detailed information on the hardware installation please refer to the documentation available on **www.boschsecurity.com** under **Product Catalog** > **CCTV** > **IP Video** > **Disk Arrays**.
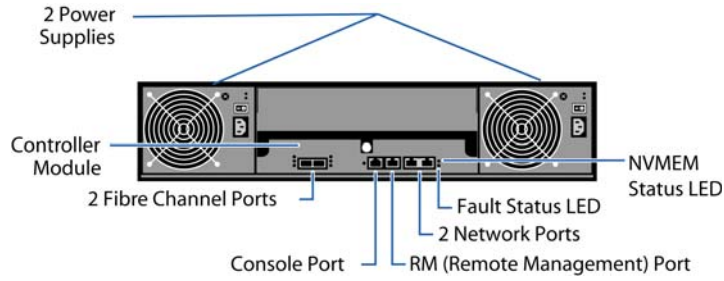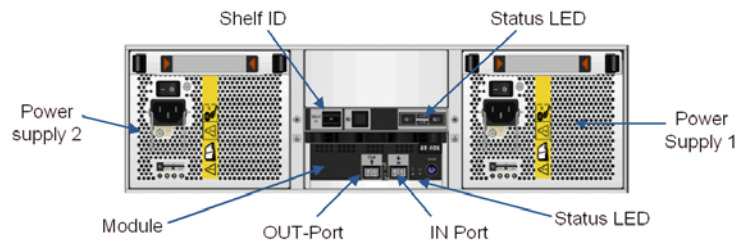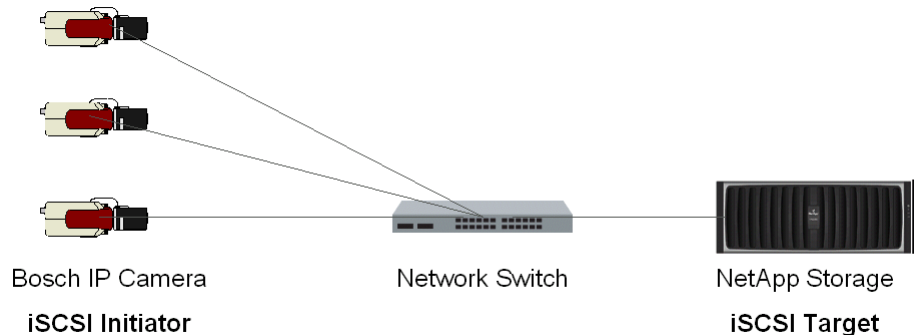
WARNING!
The storage system is heavy. Two people are required to lift a system.

CAUTION!
Only use the rail kit supplied with the system. Using a different rail kit can cause injury to you or damage to your system.

1. Unpack your system by opening the packing box and lifting the outer shipping box off the pallet.
2. Install the appropriate rack mount for your installation and system using the Rack Installation flyer in the rail kit box for reference.
3. Install the appropriate rack mount for any disk shelves that will be connected to the system
4. With two people, lift the system into the rack or system cabinet, and secure it to the rack uprights. The system weighs slightly over 30 kg (67 lb) and requires one person at the end of the system to guide it into the rail ends.
5. For installation and wiring of additional disk shelves, see *Section 6 Adding Storage*, page 17.
6. Connect the power cords, making sure that the power supplies are connected to separate AC power sources. This ensures redundant power sources.
    Make sure to set the power cable retention clips properly.

Power cord and retention clip
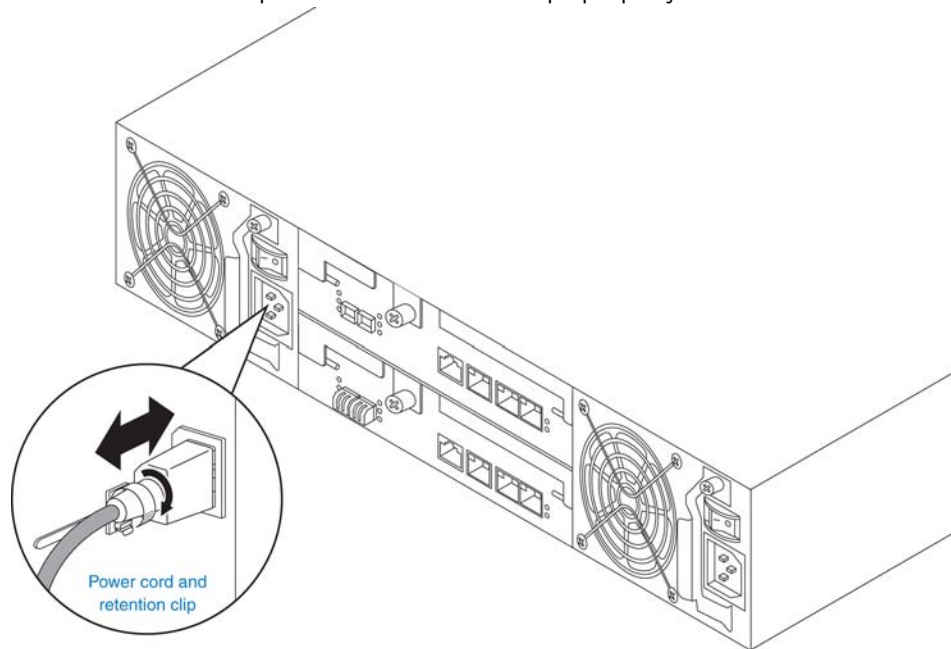
Ensure that power supply LEDs are lit.

4   Delivery Status

For use with the VRM Video Recording Manager application or for direct recording from Bosch cameras and senders, the system should be configured following the steps in the next chapter.

Preconfigured settings upon delivery:

	DSA-S5B50	**DSA-N2B20**	**DSA-N2B50**
RAID type	RAID-4	RAID-DP	RAID-DP
Volume	vol0 with 2 disks	vol0 with 3 disks	vol0 with 3 disks
IP address	10.10.10.10	10.10.10.10	10.10.10.10
IP address (2nd port)	10.10.10.11	10.10.10.11	10.10.10.11
User (Web interface)	root	root	root
Password	<blank>	<blank>	<blank>

All further configuration is done through the Web-based user interface or VRM 1.5 or higher. Each system is delivered with the preconfigured IP address 10.10.10.10 on Ethernet port e0a and IP address 10.10.10.11 on the second Ethernet port e0b.

5 Configuration through the Web Interface

> **(i)** **NOTICE!**
> Do not use the S5B50 management software StoreVault Manager for the configuration. The DSA series come with a dedicated Bosch standardized system layout. StoreVault Manager is not compatible with the Bosch layout.

Follow these steps to configure each system. This procedure is nearly identical for all three types of storage systems.

1. Turn on the system.

   DSA-S5B50: The power button is located on the front side on the left-hand side.

   DSA-N2B20 / **DSA- N2B50** / **additional disk shelves**: There is a power switch on each power supply unit (right- and left-hand side) on the rear side of the device.

   If there are additional disk shelves installed, first power on the base unit, then power on the expansion units.

> **(i)** **NOTICE!**
> It can take a few seconds until the LEDs on your system power supplies light up.

> **(i)** **NOTICE!**
> The Java Runtime Environment must be installed on your computer in order to use the Web interface. Always use the most recent version.

5.1 Configuration of the Network Settings and Access to the Interface

All systems are delivered with a default IP address configuration of 10.10.10.10, netmask 255.0.0.0. In order to connect to the system, you need to configure a network interface on your computer to use the same network.

2.   Select from the **Control Panel** of your computer **Network Connections**, **Properties**.
     Here, configure your network interface to use IP address **10.10.10.9** with Subnet mask
     255.0.0.0.

     Example screen:
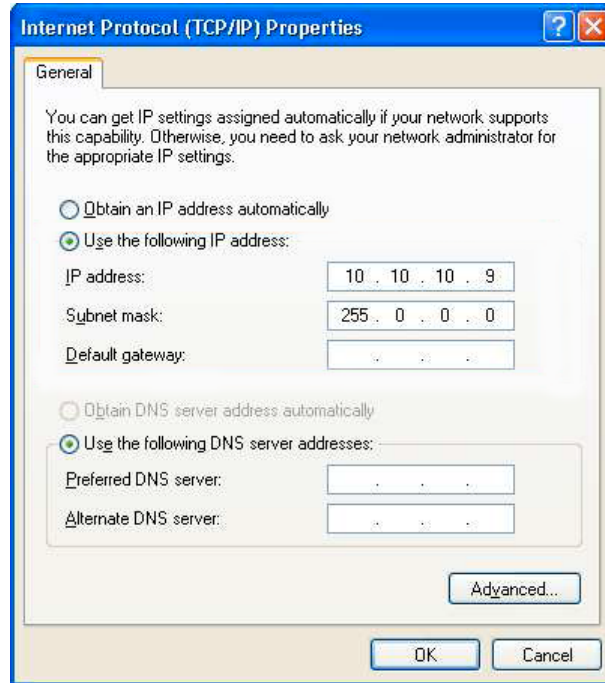
	NOTICE!
	The IP address 10.10.10.9 is an example. The IP addresses 10.10.10.10 and 10.10.10.11 are the default IP addresses for the storage system and cannot be used otherwise.

3.   Connect your computer directly to the network port labeled **e0a** on the storage system,
     using a crossover cable.
     Alternatively, connect your computer to the network the storage system is connected to.
4.   Open a Web browser and enter **http://10.10.10.10/na_admin**.
     You will be asked to log in.

5. Enter **root** as the user name, leave the password blank.
   The FilerView start page loads and shows an overview on the system status.
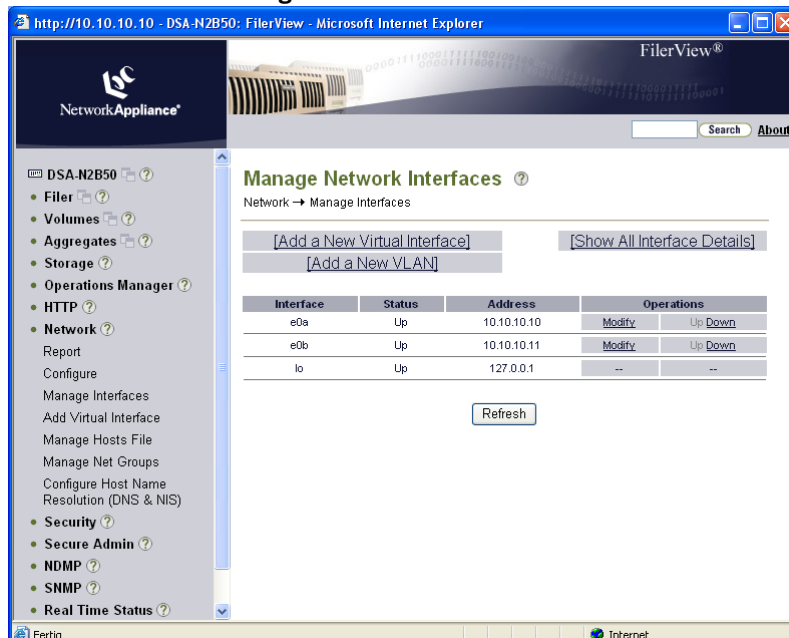

6. Click the **FilerView** icon. This opens the FilerView administration interface in a new window. On the left-hand side of the FilerView interface, you will see the navigation panel.
   For direct help on a specific topic, click one of the **?**-buttons.

NOTICE!
FilerView is only available in English.

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7. Select **Network** > **Manage Interfaces**.

8. Click **Modify** next to the network interface labeled **e0a** and configured with IP address 10.10.10.10.
9. Enter the IP address information for the network. Change **IP Address** and **Netmask** to the desired value. Leave **Broadcast** blank.
   Example screen:

10. Set **Media Type** to **10/100/1000 Mbit Auto-negotiate**.
    Leave the **Trusted** option enabled.
11. Click **Apply** to confirm the changes. As this reconfigures the network interface you are connected to, the page will fail to load after clicking the **Apply** button.
12. Reset the network settings of your computer to its original settings or settings suitable for your CCTV network.
13. Reconnect to the FilerView interface using the new IP address of the storage system. Enter **http://<newIPaddress>/na_admin** and log in using **root** as the user name and leaving the password blank.
14. On the FilerView start page click the **FilerView** icon to open the administration interface again.

5.2 Time and Date Settings

15. In the navigation panel, select **Filer** > **Set Date/Time**.
    The current date and time are displayed. If the time settings are incorrect, click **Modify Date/Time**. This starts the **Date/Time Wizard**. While the wizard guides you through the set-up, click **Next** to go to the next step. Click **Cancel**, if you do not want to continue the procedure.
16. From the list, select the **System Time Zone**. Click **Next**.
17. Set **System Time Update Method** to **Manual**. Click **Next**.
18. Enter the current time and date. Click **Next**.

19. The changes are summarized on the **Commit** screen.
    Click **Commit** to apply the new settings.

NOTICE!

If you are using the VRM Video Recording Manager application (Version 1.5 or higher), all further settings are made through VRM.

If you use the digital storage systems for direct recording, continue with the following steps.

5.3   Configuring the Volume

The system is preconfigured with one volume that contains either two or three hard disks. You need to add the remaining disks of your system to the volume in order to use their capacity.

20. In the navigation panel, select **Volumes** > **Manage**.
    The preconfigured volume, named **vol0**, is listed.
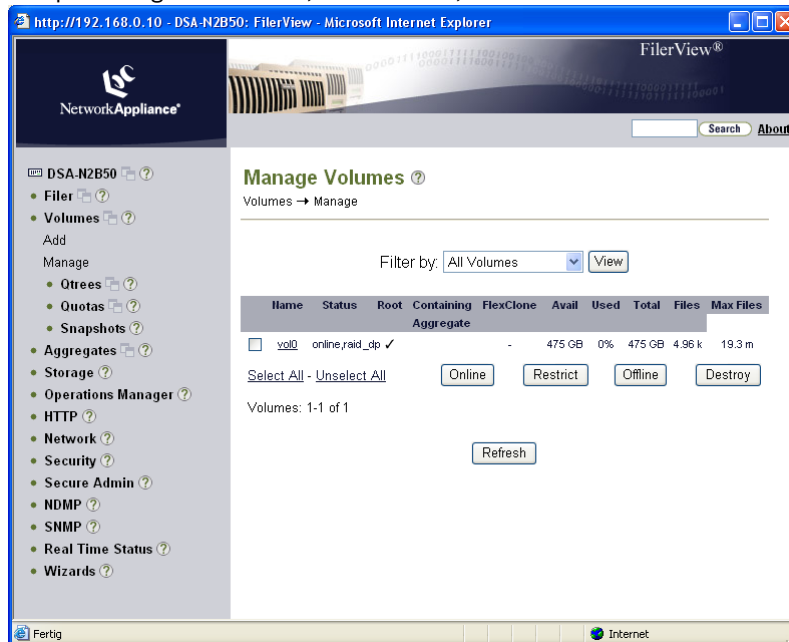
21. Click **vol0** to display and change the properties of the volume.
22. Click **Add Disks**. This starts a wizard for adding disks to the existing volume.
23. Click **Next** on the welcome screen of the **Volume Wizard**.
24. **Disk Selection**: Check **Automatic**. Click **Next**.
25. **Disk Size**: Select **Any Size**. Click **Next**.
26. **Number of Disks**:
    – **DSA-S5B50**: Select the maximum number of disks available from the list. Click **Next**.
    – **DSA-N2B20** / **DSA-N2B50**, *no extension shelves*: Select the maximum number of disks available from the list. Click **Next**.
    – **DSA-N2B20** *with extension shelves*: Add **9** disks. Later on, create further volumes as described in *Section 6.1.4 Adding New Volumes*, page 19.
       Click **Next**.
    – **DSA-N2B50** *with extension shelves*: Add **17** disks. Later on, create further volumes as described in *Section 6.1.4 Adding New Volumes*, page 19.
       Click **Next**.

27. The changes are summarized on the **Commit** screen.
    Click **Commit** to apply the new settings.

    By default, one disk is left as a spare disk. If no spare disk is needed, this disk can be added to the volume manually. To do so, please continue with step 28.
    If you would like to keep the spare disk, please continue with step 32.

28. In the navigation panel, select **Filer** > **Use Command Line**.

29. Enter **vol add vol0 1** (or replace vol0 with the volume to which you want to add the disk).
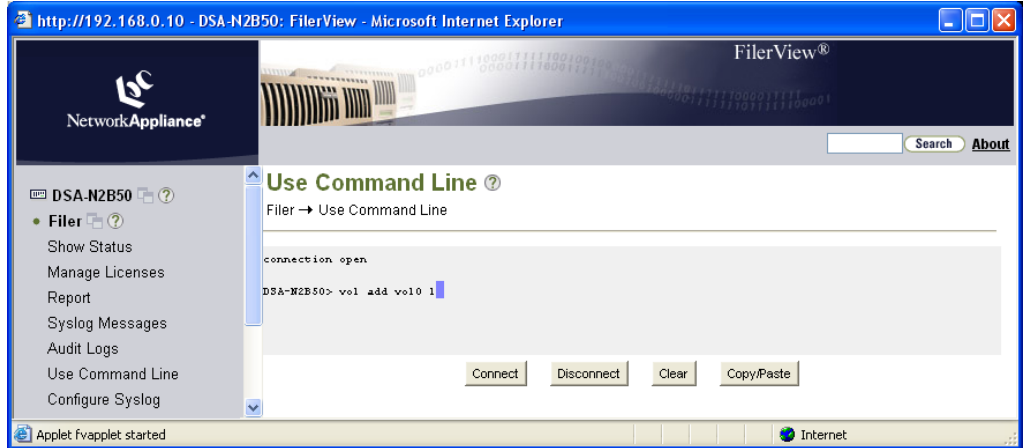
30. A warning displays. Enter **y** (yes) to confirm the action.
    A message confirms that the disk has been added.

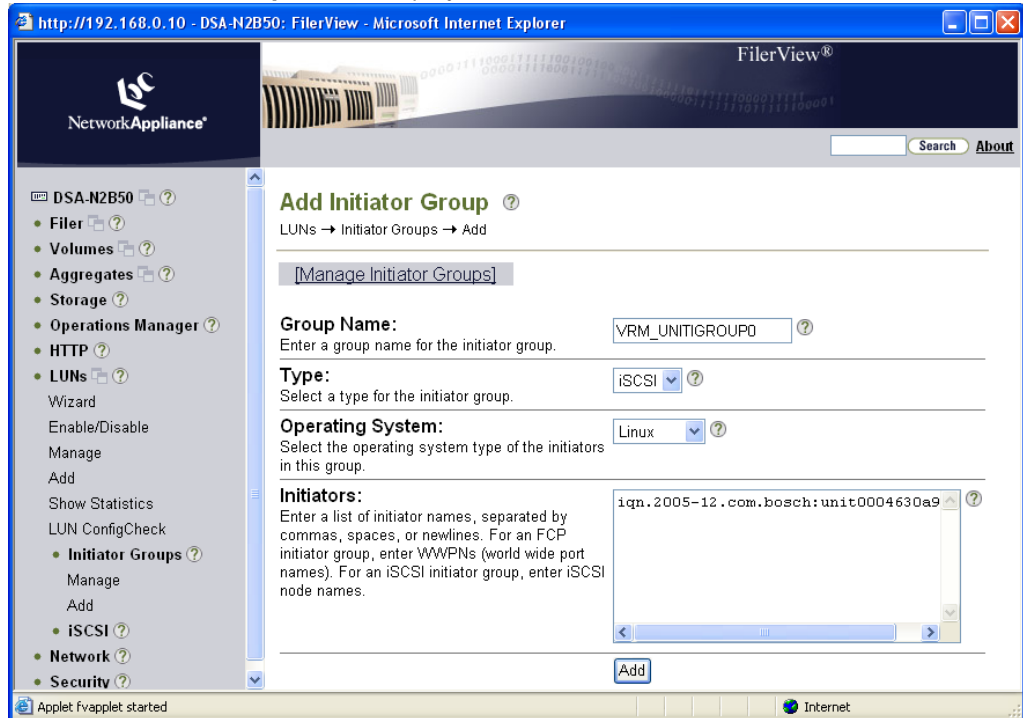31. Click **Disconnect** to disconnect from the command line console.

⚠	**CAUTION!** If the settings made here are altered later, all data stored on the disks is lost as the RAID group needs to be reconstructed.

5.4 Creating an Initiator Group

32. In the navigation panel, select **LUNs** > **Initiator Groups** > **Add**.
    The **Add Initiator Group** screen displays.

33. **Group Name**: Enter **VRM_UNITIGROUP0**.
34. **Type**: Select **iSCSI**.
35. **Operating System**: Select **Linux**.
36. **Initiators**: Enter the initiator names of all cameras and senders that shall write to this system.
    The initiator name of a device is obtained from the Configuration Manager program.

    There, select the device. Then, click the **iSCSI** tab. You can copy the iSCSI **Initiator name** to the clipboard.

    Alternatively, the initiator name can be obtained from the VRM Configurator or the Web interface of a device.
37. Click **Add** to create the initiator group.

5.5 Creating LUNs

38. Calculate the size for each LUN.
    In the navigation panel, select **Volumes** > **Manage**. Here, the available size of the volume is displayed. Divide that value by 16 to get the size of each individual LUN.

> **NOTICE!**
> Each storage system needs a minimum of 16 LUNs to provide the best performance.
> A total of 16 LUNs is considered best practice.
> If you already know that you will add additional storage shelves, you may consider to create less than 16 LUNs here, as additional LUNs will be created for the additional volumes. In that case, divide the size available for the volume by the number of LUNs you plan to create for the volume.
> Example: For a total of four volumes you might want to create four LUNs for each volume, giving you a total of 16 LUNs.

The following procedure must be carried out for each LUN to be created.

39. In the navigation panel, select **LUNs** > **Wizard**.

Click **Next** on the **LUN Wizard** welcome screen.

40. **Path**: Enter **/vol/vol0/lun1**.

The first part of this path is always **vol**, the second part is the name of your volume (**vol0**), the third part is the name of your LUN (change this for all further LUNs you are creating).

Example: Enter /vol/vol0/lun**2**, /vol/vol0/lun**3**, /vol/vol0/lun**4** ... for further LUNs.

41. **Size**: Enter the size calculated for your LUNs (available size of the volume divided by the number of LUNs to be created for this volume).

42. **LUN Protocol Type**: Select **Linux**.

43. Leave **Space-reserved** enabled and leave **Description** blank. Click **Next**.

44. On the **Add Initiator Groups** screen, click **Add Group**.

45. Select **Use existing initiator group**. Click **Next**.

46. Select the **VRM_UNITIGROUP0** that you have created before. Click **Next**.

47. On the **Add Initiator Groups** screen, click **Next**.
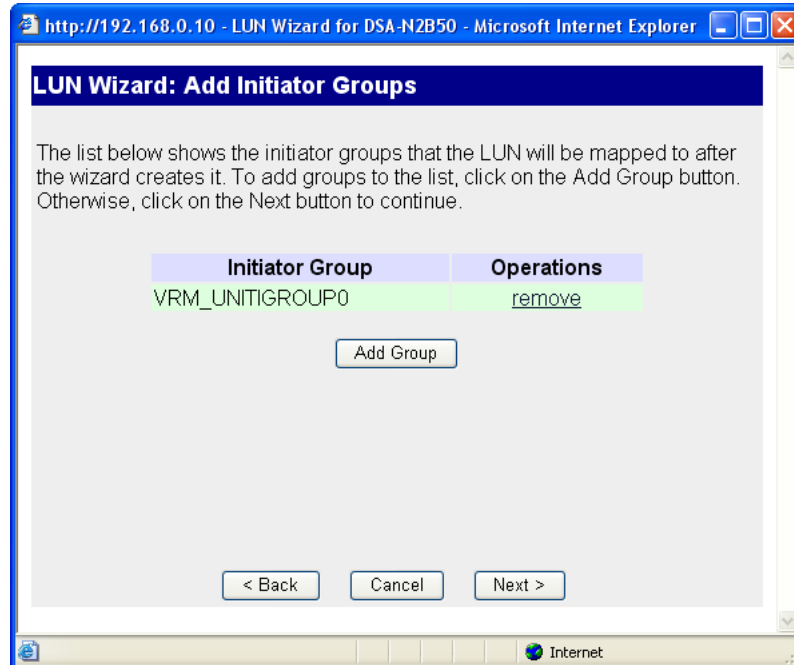
48. **LUN ID**: Leave this field blank. The lowest available ID will be used automatically. Click **Next**.

49. The changes are summarized on the **LUN Wizard: Commit Changes** screen. Click **Commit** to create the LUN.

    If the LUN has been created successfully, a **Success!** screen will display.

50. Use the **LUN Wizard** to create all 16 (or the desired number of) LUNs. The system configuration is now done.

51. It is recommended to change the password for the Web interface access. In the navigation panel, select **Security** > **Change Password**.

52. If no further storage is to be added, disconnect your computer from the storage system. Connect the storage system to the CCTV network by plugging the network cable (not supplied) into the network port, labeled **e0a**.

6   Adding Storage

Storage shelves can be added to the DSA-N2B20 and the DSA-N2B50 system.

Each expansion unit comes with 14 disks, 750 GB each.

Shelves are daisy-chained in a so-called loop. The first shelf added to a storage system is directly connected to the storage system. Each following shelf is connected to the last shelf in the existing loop, with a maximum of six shelves in one loop for the DSA-N2B50 and a maximum of four shelves for the DSA-N2B20.
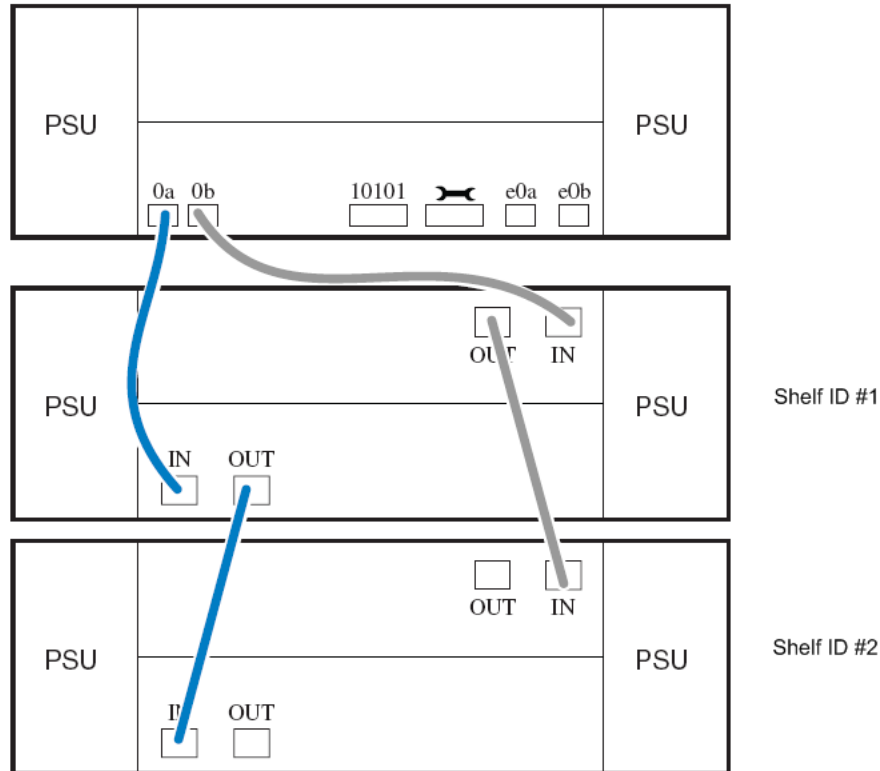
6.1   Installing a Shelf

1.   Physically install and secure the shelf onto support brackets and rack.

6.1.1   Setting the Shelf ID

Each shelf will have to have an ID. The shelf ID represents the position in the loop. The first shelf (which you attach directly to your storage system) has ID #1, the second shelf (attached to shelf number one) has ID #2 and so on.

2. Set the correct Shelf ID by pressing the **+** or **−** button at the back of the shelf, next to the ID display.

   Note: Do not use identical IDs for different shelves.
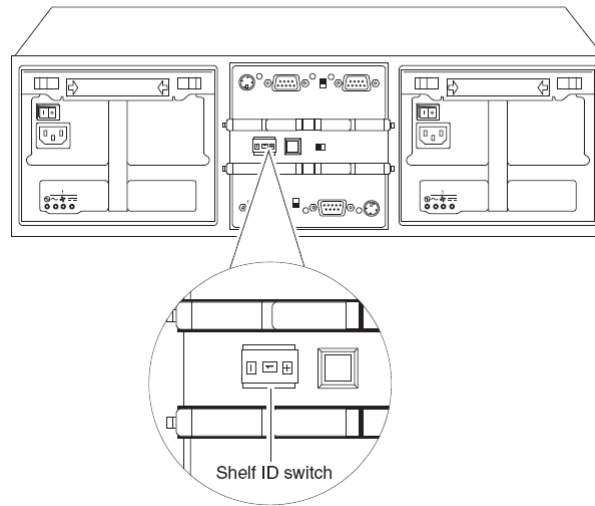
Shelf ID switch

6.1.2 Connecting the Power Supplies

3. If not already done, power on the base unit. On the shelf, connect both power supplies and switch them on. Wait 30 seconds to allow the shelf to initialize.

   Make sure that the shelf displays the correct shelf ID on the front display before you continue.

6.1.3	**Connecting the Shelf**

4. Connect the shelves using the supplied cables.
    –   For the *first* shelf:
        Insert an SFP into the **In** port of each of the two I/O modules at the back of the shelf to convert them to optical ports, making sure that the SFP has the correct position before inserting it.

        Plug in one end of the optical cable to the **In** port of the lower I/O module on your shelf.
        Plug the other end into the Fibre Channel (FC) port labeled **0a** on the storage controller.
        Connect one end of the second optical cable into the **In** port of the upper I/O module of your shelf.
        Connect the other end to the second FC port on your storage system, labeled **0b**.
    –   For *additional* shelves:
        Insert an SFP into the **In** port of each of the two I/O modules at the back of the shelf to convert them to optical ports, making sure that the SFP has the correct position before inserting it. Repeat this for the **Out** port of the last shelf in your existing loop.
        Connect one end of the SFP-SFP cable to the **In** port of the upper I/O module in your new disk shelf.
        Connect the other end to the **Out** port of the upper I/O module of the last shelf in your existing loop.
        Connect one end of the SFP-SFP cable to the **In** port of the lower I/O module in your new disk shelf.
        Connect the other end to the **Out** port of the lower I/O module of the last shelf in your existing loop.

> **NOTICE!**
> It might take up to 60 seconds for the storage system to recognize the new disks.
> The procedure as described above is only valid for new disk shelves. If you want to assign disk shelves that have already been used by a different storage controller, please refer to the original NetApp documentation.

5. Log in to the FilerView administration interface as described in *Section 5 Configuration through the Web Interface*, page 8.
6. In the navigation panel, select **Storage** > **Disks** > **Manage** and verify that the system shows the new disks, i.e. **View Type** is set to **Spare Disks**.

> **NOTICE!**
> If you are using the VRM Video Recording Manager application (Version 1.5 or higher), all further settings are made through VRM.
> If you use the digital storage systems for direct recording, continue with the following steps.

6.1.4	**Adding New Volumes**

7. In the navigation panel, select **Volumes** > **Add**.
    Click **Next** in the welcome screen of the **Volume Wizard**.
8. **Volume Type Selection**: Set to **Traditional**. Click **Next**.

9. **Volume Parameters**:
    Volume Name: Enter a name for the new volume. The name should consist of the word **vol** and the ID of the disk shelf you just added (e.g. the volume for the first shelf you are adding to your storage system will be **vol1**, the volume for the second shelf will be called **vol2** and so on).

    Leave the second and third parameter to their default value and enable **Double Parity**. Click **Next**.
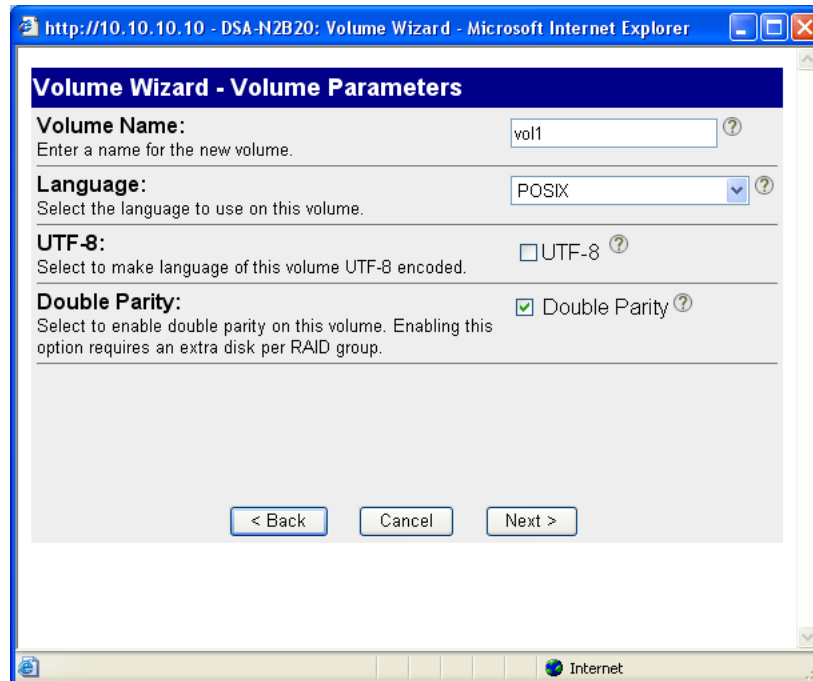
10. **RAID Group Size**: Set to **14**. Click **Next**.
11. **Disk Selection**: Set to **Automatic**. Click **Next**.
12. **Disk Type**: Select **Any Type**. Click **Next**.
13. **Disk Size**: Select **Any Size**. Click **Next**.
14. **Number of Disks**: Select the maximum value available. Click **Next**.
15. The changes are summarized on the **Commit** screen.
    Click **Commit** to apply the new settings.

    By default, one disk is left as a spare disk. If no spare disk is needed, this disk can be added to the volume manually. To do so, please continue with step 16. If you would like to keep the spare disk, please continue with step 20.

16. In the navigation panel, select **Filer** > **Use Command Line**.
17. Enter **vol add vol1 1** (... vol add vol**2** 1 ... vol add vol**3** 1 ... and so on, depending on the volume you are setting up).
18. A warning displays. Enter **y** (yes) to confirm the action.
    A message confirms that the disk has been added.
19. Click **Disconnect** to disconnect from the command line console.
20. In the navigation panel, select **Volumes** > **Manage**.
21. Click the name of the new volume to open the **Volume Properties**.
22. Click **Modify** to change the properties.
    The **Modify Volume Wizard** displays.
23. **Volume**: Verify that the newly created volume is selected. Click **Next**.

24. On the following two screens, click **Next** and leave all options to their default value.
On the third screen (**Other**), uncheck **Access Time**.
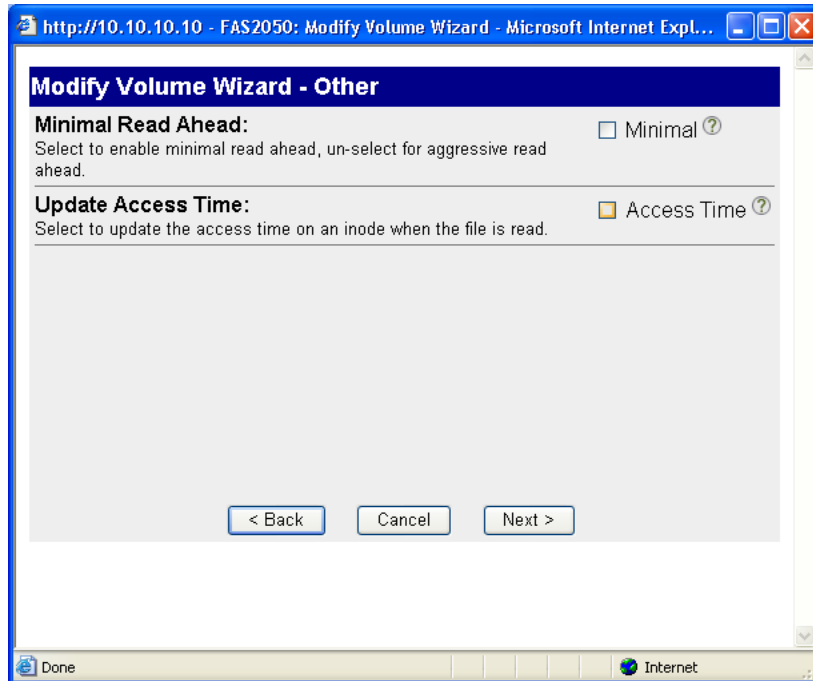
25. The changes are summarized on the **Commit** screen.
Click **Commit** to apply the new settings.

26. In the navigation panel, select **Volumes** > **Snapshots** > **Configure**.
Choose the newly created volume from the drop-down list.

Uncheck **Scheduled**.
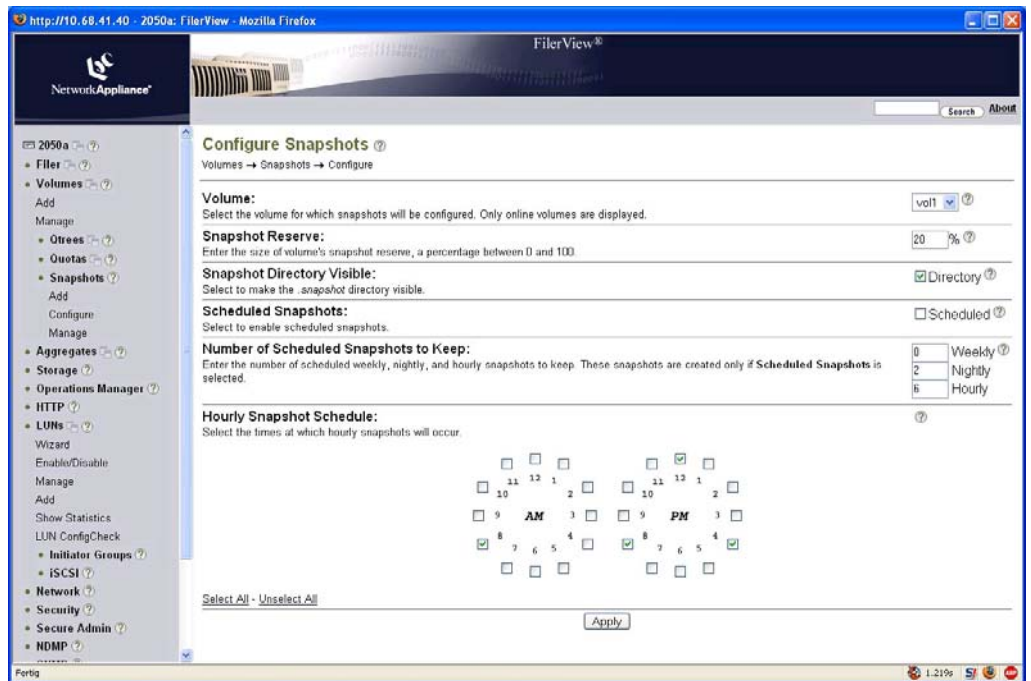
Click **Apply** to commit the change.

27. Repeat steps 7 to 26 for each volume you wish to add.

6.1.5 Creating LUNs

For each newly created volume, you must create at least one LUN, as previously created LUNs cannot not be reconfigured to use them for the new volume.

> **NOTICE!**
> The size of the LUNs for Bosch applications is limited to 2TB.

28. Create LUNs for the volume, as described in *Section 5.5 Creating LUNs*, page 14.
    Be sure to use the correct volume when setting the path for each LUN.
    Example: /vol/**vol1**/lun0

7   Monitoring and Maintenance

> **NOTICE!**
> You can find more detailed documentation on
> **www.boschsecurity.com** under **Product Catalog** > **CCTV** > **IP Video** > **Disk Arrays**.

7.1   Monitoring the System

7.1.1   Using the FilerView Monitor

The system should be monitored. An overall system status monitor is provided by the
FilerView administration interface.

1. Connect to the FilerView interface as described in *Section 5 Configuration through the
    Web Interface*, page 8.
2. In the navigation panel, select **Real Time Status** > **Health Monitor**.
    The overall Health Monitor opens in a new browser window.
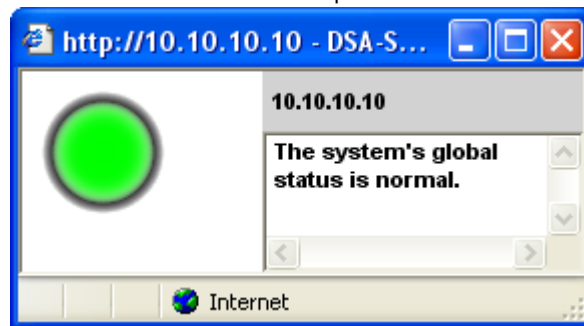
Keep this window open and check the status regularly.

3. In the navigation panel, select **Real Time Status** > **Filer At-A-Glance**.
    Data traffic, CPU load etc. are visualized here.

7.1.2   Logs and Reports

1. Connect to the FilerView interface as described in *Section 5 Configuration through the
    Web Interface*, page 8.
2. In the navigation panel, select **Filer** > **Report**.
    A general report on the system displays.
3. In the navigation panel, select **Filer** > **Syslog Messages**.
    The log file for all system messages displays.
4. In the navigation panel, select **Network** > **Report**.
    Information on the network displays.
5. In the navigation panel, select **LUNs** > **iSCSI** > **Report**.
    The iSCSI status and further information displays.

7.2 Maintenance

7.2.1 Disk Replacement DSA-S5B50

Follow these steps to replace a disk:

1. Remove the new disk drive from the antistatic bag.
2. Determine the disk drive to be replaced, see *Section 7.5.1 DSA-S5B50*, page 30.
3. Press the release latch of the drive. Swing the drive bay cover to the right until it is at a right angle to the chassis.

4. Slide the entire assembly toward you in order to pull it out of the drive bay.

5. Press the release latch of the new replacement drive. Swing the drive bay cover to the right until it is at a right angle to the chassis.
6. Slide in the drive carrier and close the drive bay cover.
   The drive LED should be lit **green** now.

7.2.2 Disk Replacement DSA-N2B20 / DSA-N2B50

Follow these steps to replace a disk:

1. Determine the disk drive to be replaced, see *Section 7.5.2 DSA-N2B20 / DSA-N2B50*, page 30.
2. Grasp and pinch the latch.

3. Rotate the handle to extract the disk.

4. Support the bottom of the drive to remove it.

5. Reverse these steps to replace the hard disk.
    The drive LED should be lit **green** now.

7.2.3   Replacement of Modules
Documentation on the replacement of other modules is available on

www.boschsecurity.com under **Product Catalog** > **CCTV** > **IP Video** > **Disk Arrays**.
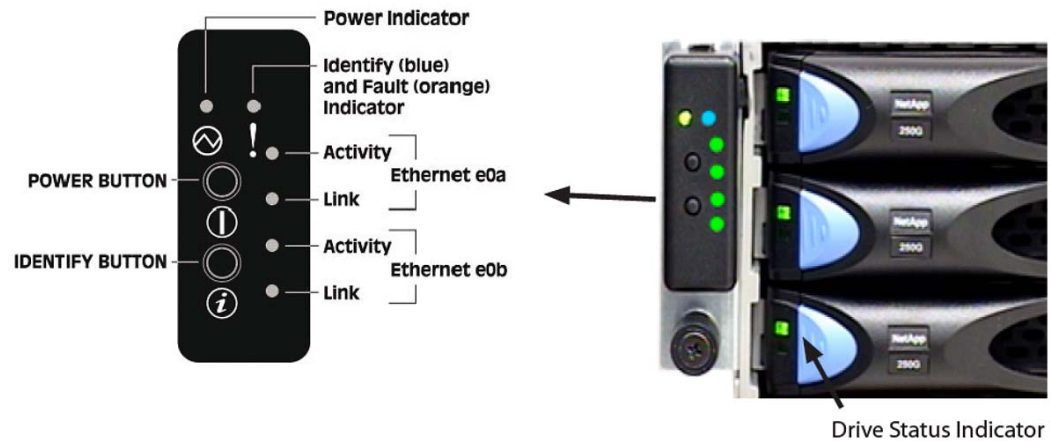
Refer to these documents:
–   Replacing CF Card.pdf
–   Replacing Controller Module.pdf
–   Replacing DIMMS.pdf
–   Replacing NVMEM Battery.pdf
–   Replacing PCI Card.pdf
–   Replacing Power Supply.pdf
–   Replacing System Chassis.pdf

7.3   Hardware Troubleshooting

7.3.1   DSA-S5B50

LEDs on front side, left:

Drive Status Indicator

If the **Power Indicator** is not lit green, the system has no power.

▶   Check the cables and press the power button.

If the **Ethernet Link LED** is not lit, no network connection is established.

1.   Check if the cable is plugged in at both ends.

2.   Check the cable and, if neccessary, replace it.

If the **Ethernet Activity LED** is blinking, data is currently being transferred.

Each disk has a **Drive Status Indicator LED** to the left-hand side. If it is lit **amber**, a drive fault is indicated.

The drive status indicator LED on the right-hand side may show the following codes:

LED Code	Indications
00	Booting firmware
12	Booting ONTAP
11	ONTAP boot complete
E1	DHCP failed on both network ports
E2	Battery too low
E3	Battery broken

Each *power supply* has two LEDs on the rear side.

–   A **green blinking** LED indicates that the power supply is on stand-by voltage.

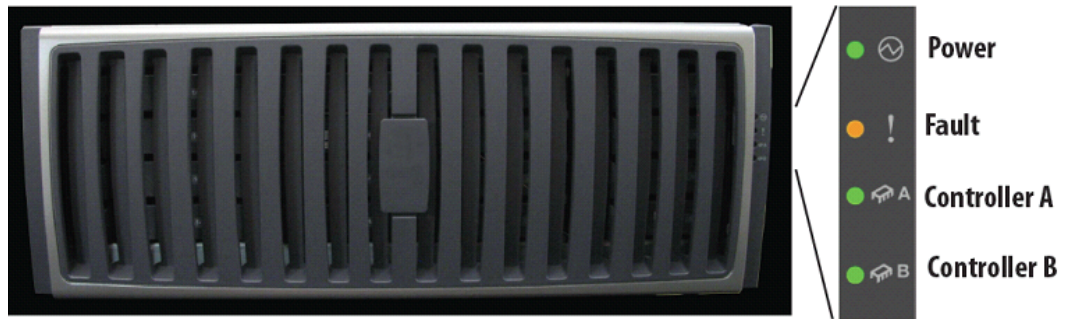–   An **amber** lit LED indicates a power supply fault.

On the rear side, two LEDs are found next to each Ethernet port. If only one LED is lit, no connection is established.

If the LED on the **NVRAM card** is lit **amber**, a fault is indicated.

| 7.3.2 | **DSA-N2B20 / DSA-N2B50** |

LEDs on front side, right:

If the **Power LED** is not lit green, the system has no power.

▶   Check the cables and switch the system on.

If the **Fault LED** is lit **amber**, the system is halted, or an error is indicated.

A blinking **Controller LED** indicates activity of the controller.

A corresponding **Power LED** and a **Fault LED** are also located on the rear side of the system.

On the rear side, next to the Ethernet ports, two fault-indicating LEDs can be found.
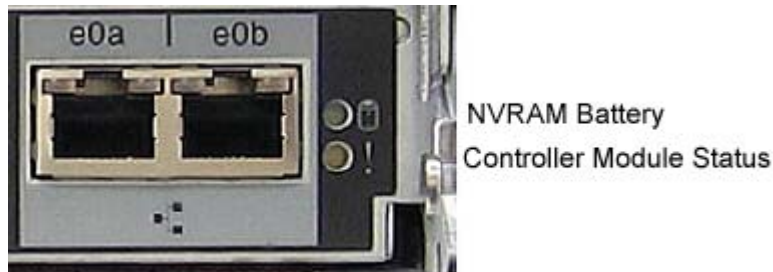
–   **NVRAM Battery LED** blinking **green**:

NVRAM is in battery-backed standby-state (contains data not written to disk yet).

–   **Controller Module Status LED** lit **amber**:

System is initializing or system fault.

| 7.3.3 | **Disk Shelves** |

There is a corresponding LED next to each SFP slot on the rear side of the shelf:

–   LED lit **green**:

SFP connection.

–   LED not lit:

No SFP connection. Check all cable connections and ensure all plugs are properly fitted.

There are four LEDs on the power supply unit on the rear side of each shelf.
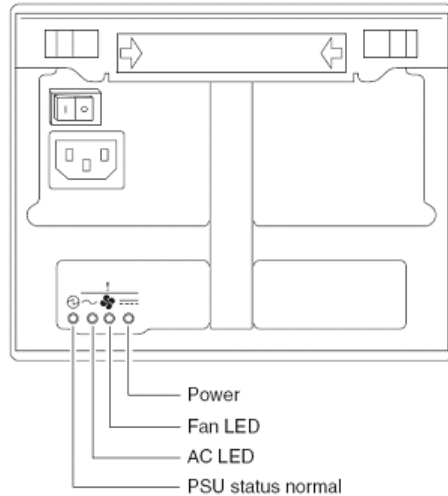
If either the **Fan LED** or the **Power LED** are lit **amber**, the power supply unit must be replaced.

At the front side of each disk drive, there are two LEDs.

–   If **no** LED is lit, the drive is not recognized. Reinsert the drive.
–   If one LED is lit **amber**, a fault is indicated. The drive must be replaced.

7.4   Software Update

> **NOTICE!**
> Only Bosch certified software can be used.

> **NOTICE!**
> To update the software, the system must reboot. During this process, no data can be written to the system.

> **NOTICE!**
> If you are not using VRM, you need a program that functions as a Web server.
> For example, you can use **AIDeX Mini-Webserver** which can be downloaded from
> `http://www.aidex.de/software/webserver/`.

1. Upload the new software to a Web server
   – If you are using VRM, place the file that contains the new version in
     `C:\Program Files\Bosch\Video Recording Manager\VRM Server\web`
     on your VRM Server.
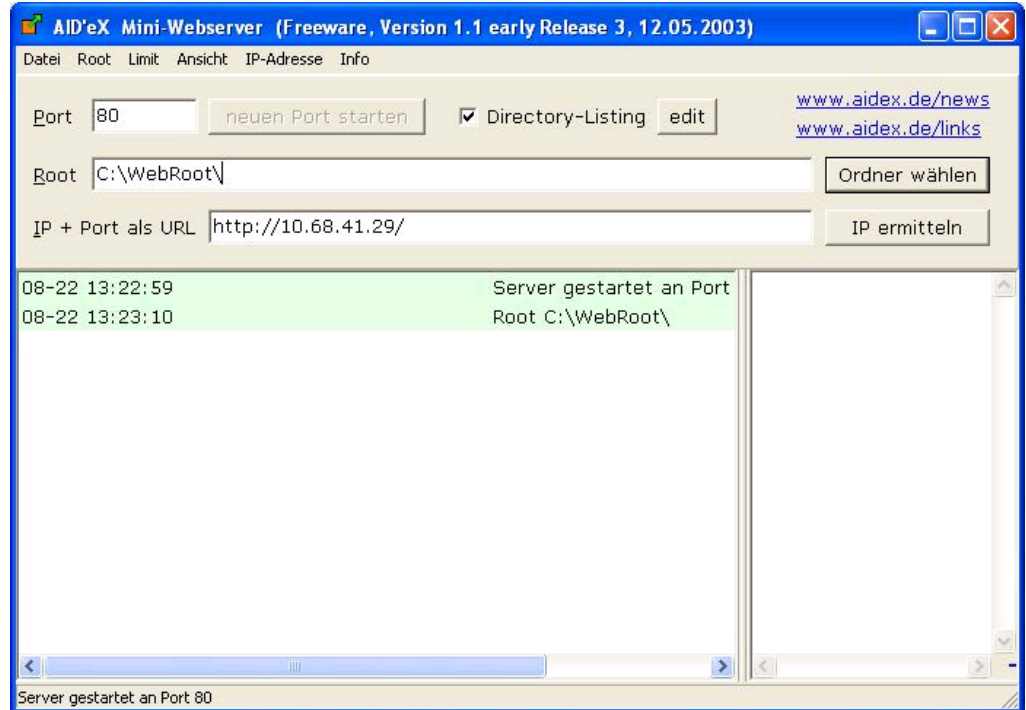   – If you are not using VRM, start a Web server tool, for example **MiniWebServer.exe**,
     select a root directory and copy the new software version into this root directory.
     Example screen:

2. Download and install the new version on the storage controller hard disks:
   Connect to the console of the storage device. To connect to the console, select **Filer** >
   Use Command Line in the navigation panel of the FilerView administration interface.
   – If you are using **VRM**:
     On the console, enter
     `software install http://username:password@<VRM Server IP>/`
     `<Filename>`
     Replace <**username**> and <**password**> with the login information of your VRM server.
     Replace <**VRM Server IP**> with the IP address of your VRM server and <**Filename**>
     with the name of the file that contains the new version.
     Wait a few minutes for the installation to complete.
   – If you are using **MiniWebServer.exe**:
     On the console, enter **software install http://<MiniWebServer>/<filename>** and
     replace <**filename**> with the name of the software update file.
     Wait until the success message displays: **Installation of setup.exe-7.xxx_e.exe
     completed**.

3. Download the new software to the CF card:
   On the console, enter: **download**.
   Wait until the success message displays: **Operator requested download completed**.

4. On the console, enter: **halt**.
   The system reboots and stops at the bootloader.
   Note that no data can be written on the disks while the system is rebooting.

5. If a new mainboard firmware comes with the release (check the release notes), on the console, at the prompt **LOADER>**, enter **update_flash**.

6. If a new BMC firmware comes with the release (check the release notes), on the console, at the prompt **LOADER>**, enter **update_bmc**.

7. On the console, enter: **bye**.
   The system reboots with the new software.

7.5 Disk Identification

7.5.1 DSA-S5B50

The disk drives are numbered from 0 to 11:
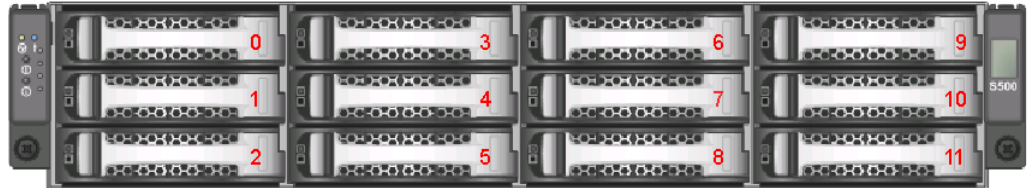
7.5.2 DSA-N2B20 / DSA-N2B50

7.5.3 Disk Shelf

Disk ID = Shelf ID * 16 + Bay Number
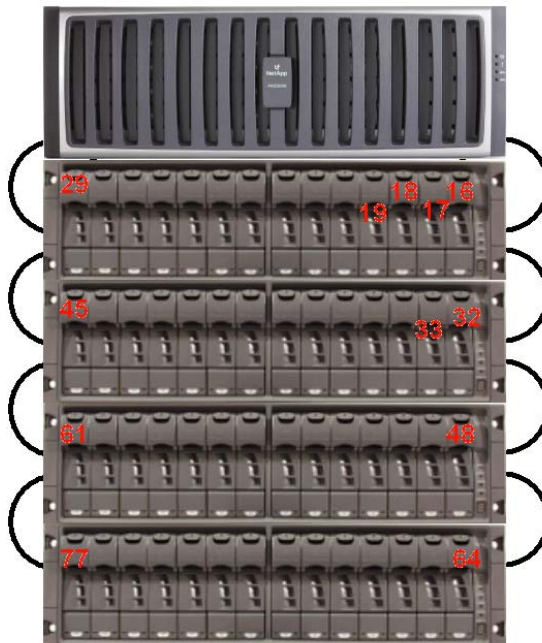
8   Technical Data

For more detailed information, please refer to the data sheets with the latest information available on
www.boschsecurity.com under **Product Catalog** > **CCTV** > **IP Video** > **Disk Arrays**.

8.1   Technical Specifications DSA-S5B50

8.1.1   Electrical Requirements

AC power/Max current	100 V to 120 VAC, 9 A
	200 to 240 VAC, 4.5 A
Frequency	50/60 Hz
Heat dissipation BTU/h	1706 BTU, fully loaded

8.1.2   System Hardware Specifications

| Chassis	2U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Disk drives	Up to 12: 1 TB SATA-II drives
Max raw capacity	12 TB
DDR2 memory (system RAM)	2048 MB
Nonvolatile SDRAM (NVRAM)	256 MB—protects "in flight" transactions for 3 days in the event of a power loss
Integrated I/O	2 x 10/100/1000 Gigabit Ethernet, copper

8.1.3   Mechanical

Height	89 mm (2 U) (3.5 in (2 U))
Width	447 mm (17.6 in)
Depth	508 mm (20 in)
Weight	35.8 kg (52 lb), fully loaded

8.1.4   Space Requirements

Front clearance	268 mm (10.55 in)
Rear clearance	414 mm (16.3 in)

8.1.5   Environmental

Temperature	
• operating range	0 °C to +40 °C (+32 °F to +104 °F)
• storage range	-10 °C to +65 °C (-40 °F to +149 °F)
Relative humidity	
• operating range	20 to 85%, non-condensing
• storage range	20 to 95%, non-condensing
Operating acoustic noise	66 dBA at 1 m at +23 °C

8.2 Technical Specifications DSA-N2B20

8.2.1 Electrical Requirements – One Controller Module

Input voltage: 100 to 120V	Worst case, single PSU	System, two PSUs
• input current measured	3.37 A	3.22 A
• input power measured	332 W	316 W
• thermal dissipation	1133 BTU/hr	1077 BTU/hr
Input voltage: 200 to 240V	Worst case, single PSU	System, two PSUs
• input current measured	1.69 A	1.66 A
• input power measured	327 W	305 W
• thermal dissipation	1114 BTU/hr	1039 BTU/hr
Input power frequency	50 to 60 Hz	50 to 60 Hz

8.2.2 System Hardware Specifications

Chassis	2U, 19" rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	12 x 750 GB SATA II drives
Max raw Capacity	9 TB
DDR2 memory (System RAM)	1024 MB
Nonvolatile SDRAM (NVRAM)	256 MB - protects "in flight" transactions for 3 days in the event of a power loss.
Integrated I/O	2 Ethernet 10/100/1000 Copper
Remote management (via LAN)	Yes

8.2.3 Mechanical

Dimensions (H x W x D)	89 x 447 x 572 mm (3.5 x 17.6 x 22.5 in)
Weight	27.215 kg (60 lb) full

8.2.4 Space Requirements

Front–cooling	152 mm (6 in)
Rear–cooling	305 mm (12 in)
Front of chassis–maintenance	762 mm (30 in)
Rear of chassis–maintenance	915 mm (36 in)

8.2.5 Environmental

Operating temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Nonoperating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80% noncondensing
Acoustic level	N/A

8.3 Technical Specifications DSA-N2B50

8.3.1 Electrical Requirements – One Controller Module

Input voltage: 100 to 120V	Worst case, single PSU	System, two PSUs
• input current measured	5.07 A	4.51 A
• input power measured	504 W	439 W
• thermal dissipation	1718 BTU/hr	1497 BTU/hr
Input voltage: 200 to 240V	Worst case, single PSU	System, two PSUs
• input current measured	2.46 A	2.40 A
• input power measured	474 W	447 W
• thermal dissipation	1617 BTU/hr	1523 BTU/hr
Input power frequency	50 to 60 Hz	50 to 60 Hz

8.3.2 System Hardware Specifications

Chassis	4U, 19" rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	20 x 750 GB SATA II drives
Max raw Capacity	15 TB
DDR2 memory (System RAM)	2048 MB
Nonvolatile SDRAM (NVRAM)	256 MB - protects "in flight" transactions for 3 days in the event of a power loss.
Integrated I/O	2 Ethernet 10/100/1000 Copper
Remote management (via LAN)	Yes

8.3.3 Mechanical

Dimensions (H x W x D)	175 x 447 x 572 mm (6.9 x 17.6 x 22.5 in)
Weight	49.895 kg (110 lb)

8.3.4 Space Requirements

Front–cooling	152 mm (6 in)
Rear–cooling	305 mm (12 in)
Front of chassis–maintenance	762 mm (30 in)
Rear of chassis–maintenance	914 mm (36 in)

8.3.5 Environmental

Operating temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Nonoperating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80% noncondensing
Acoustic level	66 dBA at +23 °C
	6.6 bels at +23 °C

8.4 Technical Specifications Disk Shelf Expansion Unit – DSX-N2X00-14AT

8.4.1 Electrical Requirements

Input voltage: 100 to 120V	Worst case, single PSU	System, two PSUs
• input current measured	3.42 A	3.22 A
• input power measured	341 W	321 W
• thermal dissipation	1163 BTU/hr	1095 BTU/hr
Input voltage: 200 to 240V	Worst case, single PSU	System, two PSUs
• input current measured	1.63 A	1.60 A
• input power measured	323 W	309 W
• thermal dissipation	1103 BTU/hr	1054 BTU/hr
Input power frequency	50 to 60 Hz	50 to 60 Hz

8.4.2 System Hardware Specifications

Chassis	3U, 19" rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	14 x 750 GB SATA II drives
Max raw Capacity	10.5 TB
Shelf connectivity	Fibre Channel: • copper • fiber

8.4.3 Mechanical

Dimensions (H x W x D)	113 x 447 x 552 mm (5.25 x 17.6 x 22 in)
Weight	30.8 kg (68 lb), fully loaded

8.4.4 Space Requirements

Front–cooling	153 mm (6 in)
Rear–cooling	305 mm (12 in)
Front of chassis–maintenance	559 mm (25 in)
Rear of chassis–maintenance	305 mm (12 in)

8.4.5 Environmental

Operating temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Nonoperating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80% noncondensing
Acoustic level	58 dBA at +23 °C

9   Trademarks

Java is a trademark of Sun Microsystems.

Data ONTAP and RAID-DP are trademarks of NetApp.